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[79.12] A statistical comparison of the Initial Mass Function of young embedded clusters.

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In this contribution, a stellar Initial Mass Function (IMF) diagnostic is presented based on the Number-Ratios (NRs) of stars in three luminosity bins. The bins are centered at absolute K-band magnitudes of 1.5, 3 and 5 mag, and are 1 mag wide. Two NRs are calculated: R1, based on the two high luminosity bins, and R2, based on the two low luminosity bins. Theoretical Luminosity Functions, LFs, (for a given IMF and a set of pre-main sequence evolutionary tracks) are used to estimate of the effects of both the underlying IMF and the ages of cluster members on these NRs. For a given IMF, the range of values for R1 and R2 are found to be well constrained for both coeval and non-coeval clusters. However, significant overlap exists between values derived from different IMFs. Thus, while the NRs from a single cluster can be consistent with several different underlying IMFs, the values from several clusters can nonetheless be used to investigate: (1) is the IMF of the very young embedded clusters the same?, and (2) is the IMF of these clusters consistent with the solar neighbor IMF.

The accuracy of the observed values of R1 and R2 will depend upon corrections for extinction, excess emission, source multiplicity and distance modulus to the cluster. In the presence of these sources of errors, I discuss the minimum number of clusters needed to carry out this investigation.

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